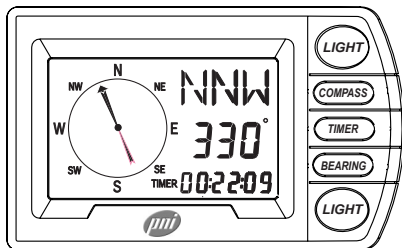


Operation Manual



V1000

DIGITAL Vehicle Compass

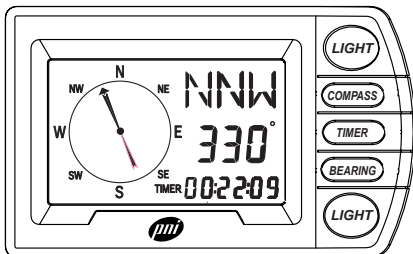


Congratulations... you have purchased one of the most sophisticated compasses available for use in a vehicle. The V1000 incorporates patented magnetic sensor technology to give you accurate, electronic compass headings. PNI's magnetic sensor technology electronically measures your vehicles magnetic field and calibrates for inaccuracies mathematically with its built-in microprocessor. The result is unequaled compass performance in a vehicle environment.

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DISPLAY AND BUTTONS



DISPLAY

The unit displays heading in 16 cardinal points (N, NNE, ENE, E, etc.), numeric digits with a resolution of 5° and a compass rose at all times when it is on. The compass rose points in the direction displayed on the cardinal points.

BUTTONS

The unit has 5 buttons: two LIGHT buttons, a COMPASS button, a TIMER button and a BEARING button.

LIGHT BUTTONS

Both LIGHT buttons have the same function, press to turn the light on or off and press and hold to set the backlight time-out values (see page 8 for detailed instructions).

COMPASS BUTTON

Pressing the COMPASS button returns you to compass only mode, pressing and holding the COMPASS button takes you into calibration mode.

TIMER BUTTON

Pressing the TIMER button takes you to timer mode, pressing it again starts/stops the timer. Pressing and holding the TIMER button resets the timer to zero (see page 10 for detailed instructions).

BEARING BUTTON

Press and release the BEARING button to enter the bearing mode. This mode stores and displays the bearing (not shown on page 1 illustration). Pressing and holding the BEARING button erases the stored bearing (see page 12 for detailed instructions).

INSTALLATION

Initially, mount the unit on the windshield or dashboard with the face of the LCD pointing toward the rear of the vehicle.

MOUNTING ADJUSTMENTS

The LCD viewing angle may be adjusted by loosening the bracket lock on the back of the compass. Turn the lock a quarter of a turn counter clockwise to loosen. Make your vertical (up and down) adjustments and then turn the lock a quarter of a turn clockwise to lock the bracket and adjustment into place. Because you need the LCD facing to the rear of the vehicle initially, do not make your horizontal (left and right) adjustments at this time. You may make any horizontal adjustments during calibration for better viewing if necessary (see page 6 for calibration instructions).

Note: The accuracy of the V1000 will be nega-

tively affected by a strong magnetic field, such as that found in proximity to an audio speaker. It is recommended that the unit be mounted 5 or more inches away from stereo speakers.

12 VOLT ADAPTER

The PNI V1000 has a 12 Volt adapter jack located on the back of the compass. Unplug the small rubber plug and it will expose the jack. Insert the small end into the jack located on the back of the compass and plug the large end into your cigarette lighter receptacle. The LED on the plug itself will indicate that there is power to the adapter. If it does not light up, check the connection and the fuse to the receptacle.

Note: Since cars do not always have constant power supplied to the lighter receptacle, you must keep a set of batteries in the V1000 at all times to allow the unit to keep memory settings.

TURNING THE POWER ON AND OFF

To turn the power on, press any button. The unit turns off automatically when you have parked your vehicle and no magnetic change has been detected for approximately 10 minutes.

MAGNETIC DISTORTION WARNING

When the unit senses there has been a significant change in magnetic fields, the cardinal points will flash slowly. This can occur when driving over a bridge, under an overpass, etc.

CALIBRATION

1. To calibrate the unit, press and hold the COMPASS button and the WAIT icon will flash.
2. While the WAIT icon flashes (located in the upper middle of the LCD), the backlight momentarily turns on and then turns off.
3. Once the light turns off, the TURN TWICE (located in bottom left corner) flashes.
4. Turn your vehicle in two circles and then press the COMPASS button (see Note next page).
5. After making the circles and pressing the COMPASS button, the <ADJ> icon flashes (in the upper left corner). Make any necessary horizontal (left/right) adjustments, and then press the COMPASS button. When making the horizontal adjustments, be sure to keep the vertical (up/down) position the same.

6. Press the COMPASS button. At this point, the TURN TWICE icon will flash.

7. Turn your vehicle in two circles and then press the COMPASS button.

The unit is now calibrated.

Note: The size of the circles or the direction your vehicle is pointing when beginning or ending the circles do not matter. However, it is important that each circle takes a minimum of 20 seconds but less than 1 minute to complete.

BACKLIGHT INFORMATION AND PROGRAMMING

Press either the top or bottom light button to turn the backlight on or off. Press and hold either light button to program the auto shut-off value of the backlight. The default auto shut-off value is 10 seconds, but a value of 30 seconds, 60 seconds, or 180 seconds can also be selected. The auto shut-off feature can also be disabled by selecting “OFF”.

To program the auto shut-off value:

1. Press the LIGHT button for 2 seconds, and the value that was selected “10” (10 being the default) will flash for 3 seconds and then is selected.
2. To select the next value, press the LIGHT button again for 2 seconds, and the next value

“30” will flash for 3 seconds, and then be selected.

3. The additional values are selected in the same manner.

Note: Each time you press and hold the light button, the flashing time out value will be selected.

TIMER MODE

With the unit turned on, press the timer button and the timer icon displays, along with the timer value. Compass information is displayed as well. The timer displays in hours, minutes and seconds, and counts up to a maximum of 99 hr, 59 min and 59 seconds. If it reaches the maximum, it resets itself and begins to count up from zero again.

Using the timer:

1. Press the TIMER button to start or stop the timer.

Note: The timer can be started and stopped any number of times.

2. Press and hold the TIMER button to reset the timer to zero.

3. If you no longer want the timer displayed, press the COMPASS button and the unit will display only compass information.

Note: The timer will continue to run, even though it is no longer in timer mode or until the unit turns off.

BEARING MODE

To program a bearing into the PNI V1000:

1. With the unit turned on, press the BEARING button to store the bearing (i.e. the numeric heading displayed in degrees on the LCD).

2. When a bearing is stored into memory, a flashing arrow tip will display in the direction of the stored bearing, and the numeric bearing value will be displayed at the bottom of the screen. The current heading will still be dis-

played as normal, with numeric digits, cardinal points and a solid compass rose pointing in the direction you are going.

2. If the current heading and bearing direction are the same, the tip of the arrow will flash, while the shaft will be solid. This indicates that you are going in the direction of the stored bearing.

3. The arrow tip will continue to flash and the numeric bearing value will be displayed until the bearing mode is exited or the bearing is cleared.

4. To erase the stored bearing, press and hold the BEARING button until the displayed bearing is replaced by 3 dashes (---).

5. If you no longer want the bearing displayed, press the COMPASS button and the unit will display only compass information.

CHANGING THE BATTERIES

1. It is time to change the batteries in the PNI V1000 when the display flickers or is dim, when you turn the backlight on and the display goes blank or when the unit will no longer turn on.
2. Remove the compass from the bracket and place the compass on a solid surface with the LCD facing down and the back of the compass up.
3. The batteries are stored underneath the battery cover, which is a large round rubber plug located at the back of the compass.
4. Gently pull the tab on the rubber plug and it will expose the battery compartment with 2 lithium batteries #CR2032.
5. Remove the two batteries and discard.

6. Insert the 2 new batteries, both with the positive side toward the battery cover.
7. Insert the rubber plug to close the battery compartment.
8. Turn the V1000 right side up and turn the power on.
9. The V1000 will go through a self-test pattern before displaying heading information. The degree bearing and the “CAL” message will flash for 30 to 60 seconds as a reminder that the compass needs to be calibrated (see page 8 for details on calibration).

Note: If nothing happens after inserting the batteries, or if the display becomes “stuck” with certain characters, remove the batteries, wait approximately one minute, and then reinsert them. Make sure the batteries are positioned correctly.

FREQUENTLY ASKED QUESTIONS

How does the PNI V1000 work?

The V1000 uses a patented magnetic sensor technology that was developed by PNI Corporation for the U.S. Military. This technology is called Magneto-Inductive and is the largest advance in compass technology since the flux-gate was invented 60 years ago. The earth generates a magnetic field, and through a mathematical calculation, compass heading is determined. The Magneto-Inductive technology is able to electronically sense the difference in the earth's field from your vehicle's magnetic field. The V1000's microprocessor electronically subtracts out your vehicle's magnetic fields, displaying highly accurate compass readings. Magneto-Inductive sensor technology has many advantages over other technologies including better performance, consuming less power and being less expensive. These advan-

tages have made Magneto-Inductive sensor technology the choice for many high profile compass applications including GM, Ford, and Chrysler automobiles, Polaris jet skis, Bayliner boats and Timex watches.

Where can the V1000 be used?

The V1000 can be used in any type of vehicle including cars, trucks, vans, SUV's, off-road vehicles, boats and RV's.

How do I read the display?

The V1000 displays direction in 3 different formats: (1) cardinal points (N, NNE, NE, ENE, E, etc.), (2) numeric digits (325°, 330°, etc.), and (3) compass rose. The 16 cardinal points of a compass (N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW) give you a general sense of direction. The numeric digits show your exact direction down to the nearest 5 degrees. The compass rose shows a solid arrow pointing in the direction you are heading.

What is calibration and why is it necessary?

Calibration is the process whereby the V1000 separates the earth's magnetic field from external magnetic fields such as those generated by a vehicle's steel body or electronics. Without calibration, the V1000 thinks the entire magnetic field it is reading is from the earth and therefore displays inaccurate compass readings.

When do I need to calibrate the V1000?

The V1000 needs to be calibrated when used for the first time, when used in an environment with a different magnetic field or when the batteries are removed.

Using the V1000 in a different environment includes moving it to a new position in the same vehicle, installing it in a different vehicle, or when there has been a change to your vehicle such as the installation of a new stereo.

How long do the batteries last and what type does it use?

The V1000 operates off of 2 lithium batteries, #CR2032. These are common batteries that can be found almost anywhere watch or hearing aid batteries are sold. The batteries should provide over 200 hours of compass usage, excluding the backlight. The backlight uses significantly more power than the compass alone, so it is recommended that the backlight be turned on only when necessary.

What happens when batteries are removed?

Removing the batteries from the V1000 erases all the information that was stored in memory, as well as calibration information. After removing batteries, the V1000 must be calibrated.

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Why does the V1000 need batteries if I'm using the 12 volt adapter?

The V1000 has a 12 volt adapter jack that allows it to run off of your vehicle's battery. In many types of vehicles, turning off the ignition also turns off the power to the 12 volt adapter. If the V1000's power is shut-off completely, it loses all its memory settings including calibration, timer and stored bearings. This means that every time you turned your V1000 on, you would need to calibrate it and reprogram any memory settings. To prevent this from occurring, the V1000 was designed to use the batteries as a power backup, allowing it to retain all memory settings. Therefore, 2 working batteries must be in the V1000 for the 12 volt adapter to operate.

What is Magnetic Distortion?

Many things generate external magnetic fields which cause compasses to be inaccurate, including metal and electronics. Unlike most compasses, the V1000 senses when there has been a significant change in magnetic fields and flashes the cardinal points. This implies that there is magnetic distortion. This may occur when driving over a bridge, under an overpass, over railroad tracks or within close proximity to something with a strong magnetic field. Once the vehicle has moved away from the source of interference, the V1000 will be accurate again. If the cardinal points are continuously flashing, it is usually a sign that there has been a significant change in magnetic fields and calibration is necessary.

SERVICE & REPLACEMENT

For the fastest service, contact or return your unit to the place of purchase.

If you wish to return the unit for replacement or repair to PNI Corporation, please follow the following procedures:

1. Obtain a Return Merchandise Authorization (RMA) number by contacting PNI:
 - *By Phone:* 1-888-422-6672 (Toll-Free within the USA only) or at 707-566-2260
 - *By Fax:* 707-566-2261
 - *By E-mail:* sales@pnicorp.com
2. Provide a proof of purchase, such as a mechanical reproduction or carbon copy of a sales receipt. If you send your original receipt, it cannot be returned. Proof-of-purchase must show printed date of purchase, model number, and place of purchase.

Once you have acquired a RMA number, pack the unit securely to prevent damage in transit. If possible, use the original packing material and box. Be sure to send the entire product.

3. Ship prepaid and insured by way of a traceable carrier: such as United Parcel Service (UPS), Roadway Parcel Service (RPS), or First Class Mail to avoid loss in transit.
4. Write the issued RMA number on the outside of your package and send your proof-of-purchase and description of the problem to:

PNI Corporation
5464 Skylane Boulevard, Suite A
Santa Rosa, CA 95403-1084

Type or print your name and address where the replacement should be delivered. After receipt of your documents and unit, a replacement unit will be sent to you. Please allow 2-3 weeks from receipt of your returned product to delivery of your replacement.

LIMITED WARRANTY; LIMITATION OF LIABILITY

PNI Corporation ("PNI") warrants to the original user that this product will be free of defects in workmanship and materials for one (1) year from the date of purchase. This warranty does not cover wear and tear due to normal use, or damage to the product as the result of improper usage, neglect of care, alteration, accident or unauthorized repair.

If the product is found by PNI to be defective and you have provided proof of purchase acceptable to PNI, PNI's entire liability and your exclusive remedy for breach of warranty shall be that PNI, at its option, will replace or repair the product and return the replacement or repaired product to you at no charge, provided that you ship the product to PNI at your expense. PNI warrants the repaired or replaced product to be free from defects in material and workmanship for a period of the greater of: (i) ninety (90) days from the date it is shipped to you; or (ii) the period of time remaining on the original one (1) year warranty.

THE FOREGOING WARRANTY IS GIVEN IN LIEU OF AND PNI DISCLAIMS ALL OTHER WARRANTIES OR REPRESENTATIONS, EXPRESSED OR IMPLIED, IN FACT OR IN LAW, WITH RESPECT TO THIS PRODUCT, INCLUDING,

BUT NOT LIMITED TO, (1) THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, OR (2) THAT USE OF THE PRODUCT WILL BE UNINTERRUPTED AND ERROR FREE.

PNI shall have no liability for any indirect or speculative damages (including, but not limited to, consequential, incidental and special damages) relating to the use of or inability to use this product, whether arising out of contract, negligence, tort, or under any warranty theory, or for infringement of any other party's intellectual property rights, irrespective of whether PNI had advance notice of the possibility of any such damages, including, but not limited to, loss of use, revenue or profit. In no event shall PNI's total liability for all claims regarding the product exceed the price paid for the product. PNI neither assumes nor authorizes anyone to assume for it any other liabilities.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.



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